Before the
Federal Communications Commission
Washington, D.C. 20554

ORIGINAL

In the Matter of	)	
	)	
Revision of the Commission's Rules to Ensure	)	CC Docket No. 94-102
Compatibility with Enhanced 911 Emergency	)	DA 98-2323
Calling Systems	)	

To: Chief, Wireless Telecommunications Bureau

BELLSOUTH PETITION FOR WAIVER OF SECTION 20.18(c) OF THE COMMISSION'S RULES

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December 4, 1998

SUMMARY

BellSouth seeks to make its digital networks and their enhanced services available to all its customers, including the hearing and speech impaired, and is committed to continuing to work towards solutions to the TTY digital compatibility problem. It bears noting that no mobile user today is being denied access to the benefits of wireless and TTY usage in emergency situations — they simply choose an analog phone.

In this petition for waiver, BellSouth demonstrates its "commitment to, and plans for, complying with Section 20.18(c)" of the rules, such that grant of the requested waiver is warranted. Specifically, pursuant to the standards set by the Bureau's *November 30 Order*, BellSouth addresses the steps it is taking to provide users of TTY devices with the capability to operate such devices with digital phones; sets forth a proposed implementation plan which, together with the Wireless TTY Forum Workplan, provides timetables and milestones regarding the implementation of such capability; and addresses the consumer concerns referenced in the *September 30 Order*.

BellSouth has been a participant in the Wireless TTY Forum for over a year to help develop a solution to the compatibility problem that exists when using TTY with digital wireless handsets, working with manufacturers, carriers, and members of the hearing-impaired community. BellSouth is also actively participating in other industry groups, and has informed its digital wireless customers about the current compatibility limitations that exist between digital systems and TTY units.

Under Section 255, manufacturers of telecommunications equipment and providers of telecommunications services must ensure that the equipment or services are accessible and usable by individuals with disabilities, if "readily achievable." Because it is presently technically infeasible for wireless carriers like BellSouth to provide reliable access for TTY users over their digital wireless networks, compliance with Section 20.18(c) is not "readily achievable" at this time.

Consequently, it is respectfully submitted that the instant waiver request should be granted.

TABLE OF CONTENTS

Before the
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	)	
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Pursuant to the Wireless Telecommunications Bureau's *November 13 Order* and Section 1.3 of the Commission's rules,[1] BellSouth Corporation ("BellSouth"), on behalf of its CMRS subsidiaries and affiliates and by its attorneys, hereby petitions the Commission for waiver of Section 20.18(c) of the Commission's rules, effective January 1, 1999, as that section relates to the transmission of 911 calls made from TTY devices[2] using digital wireless systems. BellSouth emphasizes that it will continue its efforts to work with the Commission, industry, consumer groups, and manufacturers to achieve solutions to the TTY/digital compatibility problem. As required by the *November 13 Order*, BellSouth demonstrates herein its "commitment to, and plans for, complying with Section 20.18(c)" of the rules.[3] Accordingly, it is respectfully requested that the instant waiver request be granted.

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1 *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Order*, DA 98-2323 (WTB rel. Nov. 13, 1998) (*November 13 Order*); 47 C.F.R. § 1.3.

2 The term TTY (or TDD) refers to keyboard-like telecommunications devices that enable the hearing and speech-impaired to communicate via telephone.

3 *November 13 Order* at ¶ 10.

BACKGROUND

The Commission first proposed to require that wireless radio services be capable of permitting access by individuals with speech or hearing disabilities through the use of a TTY device in its *E911 Notice of Proposed Rulemaking*, but sought comment on "costs and feasibility issues," noting that the record was "not clear" what rules or policies would be necessary to achieve such access.[4] While the concept engendered support, many commenters pointed out that the requirement to establish interfaces between TTYs and wireless systems would require coordination among many parties to establish standards and resolve technical issues.[5] Nevertheless, the Commission's *E911 First Report and Order* adopted Section 20.18(c) of its rules to require wireless carriers to transmit TTY calls to 911 services as of October 1, 1997, while concluding that interested parties and industry should coordinate efforts to establish standards and resolve technical issues.[6] In adopting Section 20.18(c), the Commission relied upon Section 255 of the Communications Act and the Americans with Disabilities Act ("ADA").[7]

On September 3, 1996, before the Section 20.18(c) requirement became effective,[8] Omnipoint, PCIA, and TIA all filed petitions for reconsideration requesting that the Commission reconsider the October 1, 1997, deadline for digital mobile radio systems to provide TTY access due

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[4] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Notice of Proposed Rulemaking*, 9 F.C.C.R. 6170, 6180 (1994) (*E911 Notice of Proposed Rulemaking*).

[5] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Report and Order and Further Notice of Proposed Rulemaking*, 11 F.C.C.R. 18676, 18700-02 (1996) (*E911 First Report and Order*), *recon.*, 12 F.C.C.R. 22665 (1997), *further recon. pending.*

[6] *E911 First Report and Order*, 11 F.C.C.R. at 18701-02.

[7] *See E911 First Report and Order*, 11 F.C.C.R. at 18699 & n.68, 18702-03 (citing 47 U.S.C. § 255, 42 U.S.C. § 12101 *et seq.*).

[8] The rules adopted in the *E911 First Report and Order*, including Section 20.18(c), became effective on October 1, 1996. *See* 61 Fed. Reg. 40348 (1996).

to digital incompatibility problems with existing TTY devices.[9] TIA specifically argued that modification of digital wireless systems to interface with TTY devices is not "readily achievable" within the meaning of Section 255, and that TTY compatibility requirements should be deferred "until after standards have been developed and a reasonable implementation time frame can be discerned."[10] PCIA also argued that access for TTYs should not be mandated until industry standards bodies could resolve the technical inability of digital wireless systems to transmit Baudot signaling tones required by older existing TTYs, because digital networks, unlike analog networks, distinguish between voice and data transmissions to implement such features as error detection and correction.[11]

In the *E911 Reconsideration Order* released in December 1997, the Commission acknowledged that "[t]he record . . . clearly indicates that it is currently not possible to provide digital wireless services to TTY users."[12] The Commission summarized the problem as follows:

> [W]hile it is currently feasible to transmit TTY calls through wireless analog systems, digital handsets and systems require different technical solutions. Digital wireless systems use vocoders that represent a mathematical model of the human vocal tract to efficiently reproduce the speech it produces. TTY [Baudot] signaling tones, in contrast, are not sounds typically produced by the vocal tract and vocoders may not reproduce them well. Industry standards bodies have been studying TTY compatibility issues, but to date have not established standards for interfaces between TTY and digital systems.[13]

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9 *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Memorandum Opinion and Order*, 12 F.C.C.R. 22665, 22685 (1997) (*E911 Reconsideration Order*) (citing Omnipoint Petition at 8-15; PCIA Petition at 10-11; TIA Petition at 12-15), *recon. pending.*

10 *See E911 Reconsideration Order,* 12 F.C.C.R. at 22688 (citing TIA Petition at 14-15).

11 *See id.* (citing PCIA Petition at 10-11).

12 *Id.* at 22693.

13 *Id.* at 22693-94.

While expressing disappointment at the inability of the wireless industry to achieve compatibility for digital systems,[14] the Commission agreed with parties who asserted that the Commission "must also recognize the present existence of technical barriers," and consequently granted an extension of the deadline for digital wireless systems for one year until October 1, 1998.[15]

Although the Wireless TTY Forum, which BellSouth actively participates in, undertook extensive collaborative efforts (meeting seven times since September 1997) to provide viable solutions, as documented in various quarterly reports,[16] the Commission was informed in September 1998 that compliance with the FCC's rules governing TTY access to 911 over digital wireless systems by October 1, 1998 was not possible due to continued unsuccessful efforts to find acceptable short-term "voice-based" solutions to achieve "backward compatibility," *i.e.*, changing the vocoder to transmit Baudot signaling over digital wireless systems, as preferred by Commission staff.[17] As a result, it was evident that no manufacturer would have a commercially available

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[14] The Commission stated that the wireless community had been on "notice" since the Commission adopted its *E911 Notice of Proposed Rulemaking* in September 1994 about the October 1, 1997 deadline. *E911 Reconsideration Order,* 12 F.C.C.R. at 22692. While the Commission proposed the rule in September 1994, it was not adopted until June 12, 1996, and did not become effective until October 1, 1996. Moreover, parties notified the Commission in the notice and comment pleading cycle, via *ex parte* filings, and on reconsideration that there were serious technical issues which required resolution before digital TTY compatibility was possible, so both the Commission and consumer groups were aware of the continuing technical feasibility problems during the period leading up to the issuance of the *E911 Reconsideration Order.*

[15] *See E911 Reconsideration Order,* 12 F.C.C.R. at 22693, 22695.

[16] *See, e.g., Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Quarterly Status Reports filed April 10, 1998 ("April Quarterly Status Report") and July 10, 1998 ("July Quarterly Status Report"). Sub-groups, such as the CDMA Development Group ("CDG"), GSM North America and Universal Wireless Communications Consortium, have also conducted testing and engaged in formal and informal deliberations throughout the same period.

[17] *See Ex Parte* Letter from Andrea D. Williams, Assistant General Counsel, CTIA, and Mary Madigan Jones, Vice President of External Affairs, PCIA, to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, FCC, at 1-2 (Sept. 11, 1998) ("September 11 *Ex Parte* Letter"). Changing the vocoder is counter-intuitive. It would involve taking a device designed for digital use and redesigning it to handle dated TTY technology. For this reason, the wireless industry has

product by the deadline, making it "*technically and fundamentally impossible* for wireless carriers to comply" with Section 20.18(c) by October 1, 1998.[18] Accordingly, the Commission granted a limited 45-day extension of the deadline, directing CTIA and PCIA to provide additional justification for any further extension.[19]

In response, the Wireless TTY Forum submitted its third Quarterly Status Report on October 14, 1998,[20] and CTIA and PCIA filed Joint Comments on October 30, 1998,[21] demonstrating once again that there does not appear to be a short-term solution that will allow the Baudot signal of a TTY device to pass through the vocoder of a digital air interface and achieve an acceptable character error rate ("CER") comparable to analog technology, *i.e.*, less than one percent.[22] Noting that Commission staff has made it very clear that the wireless industry must continue further testing on short-term backward compatible TTY solutions, the wireless industry agreed to proceed with additional tests, and therefore asked for additional time to comply with Section 20.18(c).[23] The

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pushed for a "data-based" solution, as discussed below.

[18] September 11 *Ex Parte* Letter at 2 (emphasis added).

[19] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Order, DA 98-1982 (rel. Sept. 30, 1998) (*September 30 Order*).

[20] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Quarterly Status Report filed October 14, 1998 at 2-3 ("October Quarterly Status Report"). The October Quarterly Status Report contained over one hundred pages of text and attachments detailing the test results of various proposed short and long-term solutions.

[21] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Joint Comments of the Cellular Telecommunications Industry Association and Personal Communications Industry Association at 2-3 (filed Oct. 30, 1998) ("Joint Comments").

[22] The 1% CER threshold is one of the thirteen criteria established by the consumer groups. It is also the analog service error rate, and is considered the standard by which compatibility with digital devices is measured.

[23] *See* Joint Comments at 2-3; *see also* October Quarterly Status Report at 2-3.

industry cautioned, however, that "additional testing will not yield any new or significant information."[24]

The Commission's most recent *November 13 Order* suspended the enforcement of Section 20.18(c) through December 31, 1998, and established the subject waiver mechanism, requiring carriers to provide specific information, including well-documented timetables and milestones, regarding their plans for complying with Section 20.18(c).[25] BellSouth provides this information below.

I. THE WAIVER PROCESS

A. The Waiver Standard

Under Section 1.3 of the Commission's rules, any provision of the rules can be waived for "good cause shown."[26] The D.C. Circuit has previously stated that the FCC may properly exercise its discretion to waive a rule under the "good cause" language of Section 1.3 if the particular facts would make strict compliance inconsistent with the public interest.[27] However, such waivers must be founded upon "'an appropriate general standard.'"[28] Here, the Bureau has set forth that general standard in paragraph 11 of its *November 13 Order*, by requiring that carriers specify with sufficient particularity the following:

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[24] Joint Comments at 2; *see* October Quarterly Status Report at 3. Instead of expending further efforts on short-term voice solutions which tests have shown to be infeasible, the wireless industry stated it would prefer to spend its limited resources and time on developing long-term data solutions, which may be technically feasible. *See* October Quarterly Status Report at 3; *see also* Letter from Thomas E. Wheeler, President/CEO, CTIA, to The Honorable William Kennard, Chairman, FCC at 2 (Oct. 28, 1998) ("Wheeler Letter").

[25] *See November 13 Order* at ¶¶ 3-4.

[26] 47 C.F.R. § 1.3.

[27] *See Northeast Cellular Tel. Co., L.P. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

[28] *See Northeast Cellular Tel. Co.*, 897 F.2d at 1166 (quoting *WAIT Radio*, 418 F.2d at 1159).

(1) What steps the carrier is taking or intends to take to provide users of TTY devices with the capability to operate such devices in conjunction with digital wireless phones.

(2) When the carrier intends to make this capability available to TTY users. This information should include well-documented timetables and milestones from the carrier regarding the implementation of this capability.

(3) What reasonable steps the carrier will take to address the consumer concerns referenced in the *September 30 Order*.[29]

BellSouth addresses each of these issues below, thereby demonstrating good cause for granting the subject waiver petition. BellSouth also demonstrates herein that there are fundamental technological barriers to carrying TTY calls over digital networks, and that providing such capability is not "readily achievable" as set forth in Section 255 of the Communications Act.[30] As required by the *November 13 Order*, BellSouth will supplement the instant waiver petition every three months with additional responsive information that may become available, including information from vendors, to indicate progress made toward implementation of TTY digital capability and to maintain the instant waiver.

B. Steps Taken By BellSouth to Seek Solutions

BellSouth has been active in working with industry toward developing and implementing digital wireless E911 TTY compatibility and desires to make this offering available to its hearing and speech disabled customers who seek to use digital service within the shortest feasible time. To date, BellSouth has taken the following steps:

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[29] *November 13 Order* at ¶ 11 (citing *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Order*, DA 98-1982 at ¶ 9 & App. (WTB rel. Sept. 30, 1998) (*September 30 Order*)). The "consumer concerns" referenced in the *September 30 Order* refer to numerous TTY capability requirements requested by consumer representatives to the Wireless TTY Forum, a group of wireless industry representatives (including BellSouth), equipment manufacturers, technical experts, and consumer organizations formed to develop a consensus on how to support TTY technology over digital wireless systems.

[30] 47 U.S.C. § 255(b), (c).

- BellSouth has been a participant in the Wireless TTY Forum for over a year to help develop a solution to the compatibility problem that exists when using TTY with digital wireless handsets. The company has worked with industry representatives, including manufacturers, carriers, and members of the hearing-impaired community, spending significant time and resources analyzing the various approaches toward a solution.

- BellSouth sent letters to its main suppliers of handsets, highlighting the need for TTY compatibility, and its desire for them to include it in handsets. Manufacturers are currently conducting TTY compatibility tests for their equipment, but the results of these tests will not be concluded until February of 1999.

- BellSouth informed digital wireless customers through bill inserts, point of sale displays, and written material to customer service organizations and retail sales channels, that there were compatibility problems with TTY units and that these units would not work with digital services. Presently, wireless customers of BellSouth can obtain wireless analog service that has acceptable character error rates and is compatible with TTY devices. A list of analog phone models and compatible interface devices was also compiled and distributed to retail sales outlets to help employees assist customers in purchasing decisions.

- BellSouth actively participates in other industry groups, such as the Wireless E9-1-1 Implementation Ad Hoc (WEIAD) group. WEIAD deals with all issues relating to the implementation of wireless 911, including compatibility of TTY devices.

The challenge in developing a voice solution relates both to the ability of digital wireless devices to interface with existing TTY devices and network transport of TTY communications. Analog wireless phones do not present a problem. The problem is fundamental to the algorithms used by vocoders in digital sets, the various digital transmission methods, and wireless network capabilities. When existing TTY Baudot technology interfaces with the new digital technology, it experiences unacceptable CER greater than one percent. Based upon the initial best results, there does not appear to be a short-term voice-based solution that will allow the Baudot signal of a TTY device to pass through the vocoder of a digital air interface and achieve a CER less than one percent. The better solution seems to be a data-based solution, because digital phones are data devices. BellSouth discusses some of these solutions below.[31]

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[31] The information herein is based on currently available information and material provided by BellSouth's vendors and will be updated as new information becomes available.

1. BellSouth Is Identifying and Analyzing Potential Solutions

As the Forum has already reported to the Commission, and as BellSouth discusses below, the TDMA and GSM technologies used by BellSouth pose unique technical obstacles to developing a TTY solution. Short-term voice-based solutions are not currently technically feasible, and longer-term solutions may require expensive, time-consuming and technically complex network changes.

(a) Problems with TDMA and GSM Generally

As CTIA and PCIA have reported to the Commission, both TDMA and GSM technologies are optimized to carry voice calls, not TTY calls. Character errors are primarily due to the digital vocoder, which identifies the sound in terms of filter parameters for the vocal track. A TTY Baudot signal is very different from human voice, so the vocoder has difficulty reproducing a sound that matches the Baudot tones. Accordingly, test results supporting TTY calls for both TDMA and GSM technologies made through a digital cellular vocoder have not met the consumer groups' acceptable CER. For TDMA technology, laboratory tests have revealed a CER from 2% to greater than 10%.[32] For GSM technology, tests have revealed only a slightly better CER from 2% to 4 %.[33] Both technologies, however, exceeded the CER of less than 1% favored by the consumer groups, which is believed to be the CER for analog technologies.

The primary causes for incompatibility between TTY devices and digital systems that have been identified are vocoder distortion, received signal level, multi-path fading effects, receiver attack time, hand-offs, adjacent and co-channel interference, various network effects, and the performance of TTY devices.[34] GSM systems fare somewhat better than TDMA, although still in

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32 July Quarterly Status Report at 2.

33 *Id.*

34 Joint Comments at 5.

excess of the consumer group 1% CER, because GSM vocoders use a higher data rate than TDMA, and therefore can identify and match more tones.[35] As a TDMA and GSM carrier, BellSouth will confirm that these findings with respect to the feasibility of various digital TTY solutions are also applicable to its network.

(b) Voice-Based Solutions Are Not Feasible

BellSouth believes that voice-based solutions — whereby the Baudot signal passes through the vocoder — are generally infeasible for its network because the CER for TTY devices is unacceptably high. These solutions, and some of their problems, are discussed below. For greater detail, see Attachment A, which provides a chart listing the pros and cons for each solution, an activity timetable, BellSouth's comments, and an indication of whether the thirteen consumer requirements would be supported.

Direct Audio Connection. This solution is not a viable short-term solution. It does not meet stated needs of consumer groups because the CER is too high. It also requires modification and an adapter to TTY devices, and supports only limited features. The timetable for developing the necessary equipment has not been set by the manufacturer. Additional testing is scheduled to be performed for the TDMA community in order to further characterize performance over TDMA networks with existing TDMA vocoders.

RJ-11-Type Modular Connection/Jack. BellSouth agrees with the TTY Forum that this is not a viable short-term solution. It does not meet stated needs of consumer groups because the CER is too high. Moreover, its physical size is unworkable, and the handset cannot be used for VCO functions. In fact, a separate device for HCO/VCO may be required. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders.

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[35] *Id.* at 6.

Acoustic Solution. This solution is not a viable short-term solution. It does not meet stated needs of consumer groups because the CER is too high, it is highly susceptible to background noise, and it requires a landline handset and cable. The timetable has yet to be developed by the manufacturer, although additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders.

True RJ-11 Connection. BellSouth agrees with the Forum that this is not a viable short-term solution. It does not meet stated needs of consumer groups because the CER is too high. The equipment required is also large and bulky, use of the handset is limited (it cannot be used for VCO functions and may require a separate device for HCO/VCO), an additional power supply is required, and it is expensive. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders.

Vocoder Modifications. This solution is not a viable short-term solution, and is likley not feasible for TDMA/GSM. Moreover, it is not cost effective, has the potential to degrade voice quality, and would require an extensive international standards development and implementation process.

(c) ***Long-Term Data-Based Solutions***

BellSouth has reviewed the data-based solutions currently before the Commission. While one of the solutions may be technically feasible, it can be implemented only at considerable cost and, in any event, will not likely be commercially available for a minimum of 12-18 months (which includes only development and manufacturing time, and not carrier testing and implementation).

Inter-Working Function ("IWF"); V.18 (Baudot); Proprietary TTY Modem. This solution could provide reliable communications equivalent to landline service, and may require little or no modifications to existing TTY devices. It also supports nearly all Baudot standards. However,

not all carriers have plans to implement IWF-type data services. If they do, a mobile connection interface to existing TTYs will be required. IWF also does not support VCO, and IWF with Baudot is not commercially available. The expected development and manufacturing timetable is 12-18 months, which does not include the time for carrier testing and implementation.

While this is potentially the most feasible and reliable solution from a technical perspective for BellSouth, it is not readily achievable because it will require deployment of TDMA or GSM data functionality throughout BellSouth's network — a multi-million dollar investment. BellSouth is also concerned that it would not be technically practical to provide the ability to switch dynamically between a voice call and a data/TTY call, and there is currently no reliable solution to the "callback" requirement.

Third Party Gateway. BellSouth agrees with the TTY Forum that this is not a viable solution. It is seen as too expensive to operate and maintain.

2. BellSouth Has Contacted Its Vendors to Solicit Solutions

BellSouth emphasizes that access to its network is through digital devices manufactured by third party vendors. It is critical that the Commission understand that BellSouth and other CMRS providers are carriers, and not manufacturers of telecommunications equipment. In fact, BellSouth is precluded at present from manufacturing equipment under Section 273 of the Communications Act.[36] BellSouth is therefore highly dependent on its primary equipment and software vendors to comply with Section 20.18(c) and to obtain the information necessary to provide the information requested in the *November 13 Order*.[37] Hence, while BellSouth can request certain

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[36] 47 U.S.C. § 273.

[37] The Commission has previously acknowledged carriers' reliance on vendors for compliant equipment and software, and has granted waivers of the applicable rules where equipment needed to upgrade carriers' networks was not readily achievable from manufacturers. *See, e.g., Roosevelt County Rural Tel. Cooperative, Inc. et al.*, 13 F.C.C.R. 22, 41-50 (CCB 1997).

features or enhancements from its vendors, it is unable to control the development of these features or the rate at which the project proceeds. Subject to these limitations, BellSouth has made some preliminary determinations as to which of the various solutions currently before the Commission may be feasible for BellSouth's network and, if feasible, the steps that will be necessary to implement the solution, as set forth in Attachment A.

BellSouth has formally inquired from its six major vendors the availability of a potential handset-based solution and the necessary steps for implementing such a solution. Copies of these letters to vendors are included in Attachment B. To date, BellSouth has heard back from three of its six vendors. One proposes an accessory that connects to the bottom of a handset and provides RJ11 connection compatibility with TTY, but states that "no practical solution exists yet for reducing TTY transmission digital signal error rates to those of analog signals." Another vendor suggests a data-based solution. It notes, however, that "because the TTY Forum has been concentrating all of its efforts on addressing a short-term voice channel solution," participants have been "prevented . . . from dedicating sufficient time to the development of a data solution." The third vendor is still exploring voice and data solutions. The net result, however, is that appropriate equipment is not commercially available, which makes it presently technically impossible for BellSouth to comply with the Commission's rules governing TTY access to 911 over digital systems.

C. BellSouth's Implementation Plan

As the Commission has been informed by the wireless industry on multiple occasions, carriers are largely dependent on information currently available from their vendors to determine when potential solutions may become commercially available. Once a standard is adopted, the solution will need to be developed by vendors, and tested and implemented by digital carriers. While this estimate may change, BellSouth currently believes that a long-term solution will

not be available for at least 18-24 months, which includes time for manufacturing and development, as well as carrier testing and implementation. BellSouth sets forth in Attachment C its TTY compatibility proposed implementation plan. While BellSouth does not believe voice solutions are feasible, steps are included in the implementation plan in case the consumer community revises its criteria, or a new/improved voice solution arises. BellSouth anticipates implementing TTY compatibility with a long term data solution, and will investigate both existing and new proposals. BellSouth emphasizes that this plan is tentative, covers voice solutions on the chance that one can be found, and is premised upon the successful testing of any proposed solutions. Adverse test results may delay the timetable.

BellSouth also supports the Wireless TTY Forum Workplan, hereby incorporated by reference, which it helped formulate. Consistent with BellSouth's implementation plan, the Forum Workplan also provides the Commission with a schedule of milestones for developing and implementing technical solutions for TTY users to access 911 over digital wireless systems.

D. Consumer Criteria

In the *September 30 Order*, the Bureau required that the TTY Forum finalize the "draft workplan" for its future activities and further provided that "approval of the workplan must be obtained *from all groups* participating in the Forum."[38] The Bureau stated that:

> We note, in this regard, that it will be necessary for the workplan to address consumer concerns. For example, consumer representatives recently provided to the Forum member groups a list of criteria that the consumer representatives *would like to be incorporated* into any solutions implemented by the Forum.[39]

Attached to the *September 30 Order* was the memorandum submitted to the TTY Forum by its consumer representatives, listing thirteen desired "functional characteristics" to be incorporated into

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38 *September 30 Order* at ¶¶ 8-9 (emphasis added).

39 *Id.* (emphasis added).

TTY solutions.[40] Thus, the Commission simply observed that consumer representatives on the TTY Forum had submitted these concerns to industry representatives.

In the *November 13 Order*, however, the Commission appears to have elevated the importance of these concerns, determining that for a carrier "to demonstrate [its] commitment to, and plans for, complying with Section 20.18(c)" it must "specify with sufficient particularity" the "reasonable steps the carrier will take to address the consumer concerns referenced in the *September 30 Order*."[41] BellSouth is uncertain whether the Bureau has elevated the so-called "consumer concerns" into *de facto* regulatory obligations or technical standards. In this regard, BellSouth notes that (i) the Commission has not put the consumer concerns on public notice, (ii) has not amended Section 20.18(c) to incorporate the consumer concerns into the rules, and (iii) the feasibility of incorporating the consumer concerns are currently issues before the TTY Forum and appropriate industry standards bodies. BellSouth therefore presumes that the Bureau has incorporated the consumer concerns into this proceeding for informational purposes.[42] Thus, pursuant to the *November 13 Order*, BellSouth below discusses the extent to which possible TTY solutions address the consumer concerns.

As the Commission is aware from the October Quarterly Status Report, industry has determined that the various voice- and data-based solutions support the consumer concerns in varying degrees. As discussed above, BellSouth has determined that the various voice-based solutions, including direct audio connection, RJ-11-type modular connection/jack, acoustic solution, true RJ-11 connection, and vocoder modifications, are not feasible. The proposals which may be

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40 *September 30 Order,* App.

41 *November 13 Order* at ¶¶ 10-11.

42 At most, it appears that the Commission views a carrier's incorporation of the "consumer concerns" into its TTY/911 solution as an indicia of its "commitment to, and plans for" compliance with the rules.

feasible for BellSouth's network, including inter-working function, V.18 (Baudot), and proprietary TTY modem, support some of the consumer concerns.[43] Specifically, for these proposals, the CER is expected to be less than 1%; the caller should be able to transmit TTY tones independent of the condition of the receiving modem; the landline party's TTY should not require retrofitting (the wireless party's TTY may require retrofitting); there should be no reduction of the throughput (partial rate) on Baudot; the solution should support the embedded base of TTYs sold over the last ten years, and drive conditions should be supported. These criteria are also addressed in the matrix of solutions in Attachment A. Visual monitoring, visual disconnect, vibrating ring control, and ANI/ALI have yet to be determined. It is BellSouth's understanding that additional testing may be required to determine how these remaining consumer concerns may be supported.[44]

E. Grant of the Waiver Is Warranted

Based on the foregoing, BellSouth respectfully submits that it meets the criteria for a waiver of Section 20.18(c) of the Commission's rules. Accordingly, BellSouth requests that the Commission grant the instant petition for waiver of Section 20.18(c), effective January 1, 1999, and until a long-term TTY solution is implemented.

II. COMPLIANCE WITH SECTION 20.18(c) IS NOT READILY ACHIEVABLE FOR DIGITAL CMRS PROVIDERS

As noted above, throughout the proceeding, the Commission has relied on Section 255 of the Communications Act and the ADA.[45] Section 255 requires manufacturers of telecommunications equipment or providers of telecommunications services to ensure that the

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43 *See generally* October Quarterly Status Report.

44 *See generally id.*

45 *See E911 Reconsideration Order,* 12 F.C.C.R. at 22687, 22691; *E911 First Report and Order,* 11 F.C.C.R. at 18699 & n.68, 18702-03; *E911 Notice of Proposed Rulemaking,* 9 F.C.C.R. at 6180 n.55.

equipment or services are accessible and usable by individuals with disabilities, if "readily achievable."[46] Thus, the Commission's enforcement of Section 20.18(c) must comply with Section 255's "readily achievable" standard. As discussed herein, digital wireless carriers' current compliance with the TTY obligation is not readily achievable, because it is not "easily accomplishable and able to be carried out without much difficulty or expense," taking into account factors relating to the nature and cost of the action.[47] This is particularly evident when the Commission's proposed three-step inquiry — feasibility, expense, and practicality — for determining "whether a particular telecommunications access feature" is "readily achievable" is applied.[48]

A. Feasibility

As demonstrated above, it is technologically infeasible to provide TTY access to digital wireless technologies at this time. Short-term voice based solutions favored by the Commission are not possible, and long-term data-based solutions are not yet available and are still in the testing phase. As the Commission has tentatively determined, technological infeasibility or lack of availability are "various reasons why a particular feature might not be feasible."[49] While TTY/digital compatibility — particularly data-based compatibility — may be feasible at some future date, the record demonstrates that it is not technologically feasible now.

B. Expense

As discussed above, there is no acceptable short-term solution for digital wireless carriers to comply with Section 20.18(c). Furthermore, implementation of a data-based solution will

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46 *See* 47 U.S.C. § 255.

47 *See* 42 U.S.C. § 12181(9), 47 U.S.C. § 255(a)(2); 36 C.F.R. § 1193.3; *Implementation of Section 255 of the Telecommunications Act of 1996*, FCC 98-55, WT Docket No. 96-198, *Notice of Proposed Rulemaking*, FCC 98-55 at ¶ 97 (rel. Apr. 20, 1998) (*Section 255 Notice of Proposed Rulemaking*).

48 *Section 255 Notice of Proposed Rulemaking* at ¶ 100.

49 *Section 255 Notice of Proposed Rulemaking* at ¶¶ 101-102.

be an expensive undertaking. Upgrading BellSouth's network to accommodate digital/911 compatibility requires the capability to carry any TTY call — not just 911 calls. To do so on a long-term basis further requires implementation of wireless data capabilities which, in turn, may involve an entire reconfiguration of a carrier's business plans. While some carriers have announced plans to deploy wireless data capabilities, whether they do so should remain a business decision rather than a regulatory obligation.

C. Practicality

The Commission has proposed a number of factors to consider in determining practicality, including the resources available to a provider (financial, staff, facilities, and otherwise); the potential market for the product or service; the degree to which the provider would recover the incremental cost of the accessibility feature; and timing issues (taking into account reasonable period of time to develop new accessibility solutions).[50] Applying even a few of these factors demonstrates that solutions are not readily achievable.

For example, while BellSouth does not downplay its size, it does note that as a CMRS carrier it is subject to a variety of Commission mandates, including number portability, CALEA, and enhanced 911, in addition to the Year 2000 problem, which are a significant drain on its available resources. In addition, BellSouth does not have the laboratory and research facilities necessary to do all of the testing necessary to evaluate possible TTY/911 solutions, and must therefore rely heavily on third-parties, such as manufacturers, and its participation in industry associations, for the resources necessary to implement such a solution.[51] Finally, even those long-term data based

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[50] *Section 255 Notice of Proposed Rulemaking* at ¶ 106.

[51] While BellSouth has actively participated in the TTY Forum to help facilitate the development and implementation of digital wireless TTY compatibility solutions by others, it notes that it is currently precluded from manufacturing its own equipment solutions under Section 273 of the Communications Act. *See* 47 U.S.C. § 273.

solutions which look promising are not yet available, and require additional time to develop. Accordingly, "any assessment of the practicality of a particular accessibility feature should take into account *reasonable periods of time required to incorporate new accessibility solutions* into products under development."[52]

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[52] *Section 255 Notice of Proposed Rulemaking* at ¶ 120 (emphasis added).

CONCLUSION

For these reasons set forth herein, BellSouth respectfully requests that the Commission grant the instant petition for waiver of Section 20.18(c), effective January 1, 1999, and until a long-term TTY solution is implemented.

Respectfully submitted,

BELLSOUTH CORPORATION

By: _____

William B. Barfield
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1155 Peachtree Street, NE, Suite 1800
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By: _____

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(202) 463-4182

Its Attorneys

December 4, 1998

ATTACHMENT A

Currently Identified Proposed Solutions to Be Evaluated

Proposed Solution	Direct Audio Connection (2.5mm Jack - Preferred Method) (Voice)	
Activity / Timetable	SRD Develop Standard, SDO Notify TTY Phone Manufacturers	Submit to TR45 - Dec 1998 Ericsson to Identify Timetable Ericsson to Determine
Pros & Cons	**Pros:** Cost effective Small in size Rapid to implement High immunity to interference Recognized industry connector Does not require additional power supply May allow connection to other devices **Cons:** Requires modification / adapter to TTY Yields no inherent improvement to CER Supports only limited features	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(Preferred over Acoustic) (Supported) (Supported) (Supported) (TBD) (Supported) (Supported) (Supported) (Supported) (N/A) (N/A) (N/A) (N/A)
BellSouth Comments	Does not meet stated needs of consumer groups -- CER too high. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders. Only a feasible solution if the requirements were relaxed.	

Proposed Solution	RJ11-type Modular Connection/Jack (Voice)	
Activity / Timetable	Develop Technical Information Document SRD Develop Standard Notify TTY Phone Manufactures	This option is not considered a short-term solution by the Forum and therefore is not being pursued by the Forum at this time.
Pros & Cons	**Pros:** Could support full functionality Could support some of the embedded base of TTYs **Cons:** Physical size Cannot use handset for VCO functions (may require separate device for HCO/VCO)	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(Preferred over acoustic) (Supported) (Supported) (Supported) (TBD) (Supported) (Supported) (Supported) (Supported) (N/A) (N/A) (N/A) (N/A)
BellSouth Comments	Does not meet stated needs of consumer groups -- CER too high. Still relies on vocoded voice path. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders. Only a feasible solution if the requirements were relaxed.	

Proposed Solution	Acoustic solution *use of external landline handset (Voice)	
Activity / Timetable	No Standardization required	TBD by manufacturer
Pros & Cons	**Pros:** No standardization required Supports most embedded base of TTYs Very Low interface cost Short development cycle Easily accessible to standardized landline handsets **Cons:** Highly susceptible to background noise Bulky - requires a landline handset and cable	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(Could negatively impact CER) (Supported) (Supported) (Supported) (TBD) (Supported) (Supported) (Supported) (Supported) (N/A) (N/A) (N/A) (N/A)
BellSouth Comments	Does not meet stated needs of consumer groups -- CER too high. Still relies on vocoded voice path. Acoustic coupler could actually add to CER rate. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders. Only a feasible solution if the requirements were relaxed.	

Proposed Solution	True RJ-11 Connection (Voice)	
Activity / Timetable	Develop Technical Information Document SRD Develop Standard Notify TTY Phone Manufactures	This option is not considered a short-term solution by the Forum and therefore is not being pursued by the Forum at this time.
Pros & Cons	**<u>Pros:</u>** Supports full functionality Support some of the embedded base of TTYs **<u>Cons:</u>** Physical size Cannot use handset for VCO functions (may require separate device for HCO/VCO) Requires additional power supply Expensive Bulky	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(Preferred over acoustic) (Supported) (Supported) (Not Supported) (TBD) (Supported) (Supported) (Supported) (Supported) (N/A) (N/A) (N/A) (N/A)
BellSouth Comments	Does not meet stated needs of consumer groups -- CER too high. Additional testing is scheduled to be performed for the digital technologies in order to further characterize performance over such networks with existing vocoders. Only a feasible solution if the requirements were relaxed.	

Proposed Solution	Vocoder Modifications (Voice)	
Activity / Timetable		Develop new standards Test new standard for Baudot and voice
Pros & Cons	**Pros:** No modifications to TTY Could provide more reliable CER **Cons:** Not cost effective Using Full rate Extensive international standards development and implementation process Potential to degrade voice quality Error detection and correction would be lower for a data tone call compared to data Services	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(TBD) (Supported) (Supported) (Supported) (TBD) (Supported) (Supported) (Supported) (TBD) (Supported) (Supported) (TBD) (TBD)
BellSouth Comments	Under investigation	

Proposed Solution	Inter-Working Function (IWF): V.18 (Baudot) (Data Solution) Proprietary TTY Modem	
Activity / Timetable	Complete Data SRD CDMA existing IS-707 TDMA existing IS-135 Standards modifications TBD based on SRD. Test with existing TTYs for both inbound and outbound calls. Test with PSAP, existing TTY using existing standards.	Est. Timetable 12-18 months Implement Baudot/V.18 in the IWF Update handsets to support data service.
Pros & Cons	**Pros:** Reliable communications, as good as wireline. World-wide standard Requires little or no modifications to existing TTY Could support more platforms, TTYs, PDAs, and Laptops. **Cons:** Not all carriers may choose to implement data services. Compatible with all current Baudot Standards, except Ultratec's Turbocode. Require mobile connection interface to existing TTYs. IWF do not support VCO. IWF with Baudot not commercially available.	
Consumer Requirements Supported	1. CER<1% (Supported) 2. Visual Monitoring (TBD) 3. Visual Disconnect (TBD) 4. Volume Control (N/A) 5. Vibrating Ring Signal (TBD) 6. Transmit TTY Tones (Supported) 7. No Landline Retrofit (Supported) 8. Wireless Retrofit OK (Supported) 9. VCO/HCO (Not Supported) 10. No Partial Rate Baudot (Supported) 11. ANI/ALI (TBD) 12. 10Y Embedded Base (Supported) 13. Drive Conditions (Supported)	
BellSouth Comments	Potentially most feasible and reliable solution from a technical perspective. Must specify and have implemented V.18 in the IWF. Estimated 18 month development time. Must deploy TDMA or GSM data functionality throughout network Multi-million dollar investment for BellSouth. No provision nor would it be technically practical to provide the ability to switch dynamically between a voice call and a data/TTY call. Currently no reliable solution to "callback" requirement	

Proposed Solution	3rd Party Gateway (Data Solution)	
Activity / Timetable		This option is not considered a viable solution by the Forum and therefore is not being pursued by the forum at this time.
Pros & Cons	**Pros:** Landlines TTY do not need to be modified. **Cons:** Expensive to operate and maintain.	
Consumer Requirements Supported	1. CER<1% 2. Visual Monitoring 3. Visual Disconnect 4. Volume Control 5. Vibrating Ring Signal 6. Transmit TTY Tones 7. No Landline Retrofit 8. Wireless Retrofit OK 9. VCO/HCO 10. No Partial Rate Baudot 11. ANI/ALI 12. 10Y Embedded Base 13. Drive Conditions	(TBD) (Not Supported) (Not Supported) (Supported) (TBD) (Supported) (Supported) (Supported) (TBD) (N/A) (Not Supported) (Supported) (TBD)
BellSouth Comments	Does not appear to be a feasible solution at this time.	

ATTACHMENT B

Vendor Letters

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street, N.E.
Suite 900
Atlanta, GA 30309-4599
(404) 249-0870

November 2, 1998

Philip Christopher – President & CEO
Audiovox
185 Oser Avenue
Hauppauge, NY 11788

Subject: Compatibility of Text Telephone Devices with Digital CMRS

This letter is to remind you that the deadline for BellSouth to provide compatibility of Commercial Mobile Radio Services with Text Telephone Devices (TTY) used by individuals with hearing impairments is currently November 15, 1998. The FCC has already extended this deadline from its original October 1, 1997 date, and has recently opened a proceeding to examine whether the industry is making sufficient efforts toward a solution to warrant further extending the deadline. By November 15th, if the deadline is not extended, BellSouth, along with other wireless providers must be capable of providing digital service to individuals with speech or hearing disabilities through devices used in conjunction with or as a substitute for traditional wireless mobile handsets, e.g., through the use of (TTY) to local 911 services.

While BellSouth has been working with the Wireless TTY Forum for over a year, no solution has been forthcoming. BellSouth and various other industry members of the Wireless TTY Forum have been working on a solution to the digital compatibility issue, and have found no digital technology that has error rates as low as analog wireless, which is the standard acceptable to the hearing impaired community. The FCC recently has expressed dissatisfaction with the rate of progress the industry is making on this issue. Industry has been aware of this requirement since the release of the Report and Order and Further Notice of Proposed Rulemaking (CC Docket 94-102) on July 26, 1996.

We want to make it very clear that we are interested in a vendor handset solution to the TTY compatibility problem with digital technology, and we are dependent on you to help us meet our FCC mandated requirements. We, therefore, strongly encourage you to participate in the Wireless TTY Forum efforts to develop a digital solution. Please let us know your plans and timetable for inclusion of this capability in a TDMA or GSM handset by November 12, 1998. Your response should be directed to Gloria L. Johnson, Senior Attorney, Room 910, 1100 Peachtree St. NE, Atlanta, Georgia 30309, telephone number 404 249 0325.

Thank you,

Dan Smith
Vice President Sales & Marketing

BELLSOUTH CELLULAR CORP.

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street, N.E.
Suite 900
Atlanta, GA 30309-4599
(404) 249-0870

November 2, 1998

David A. Korb – Vice President Sales and Marketing
Ericsson
PO Box 13969, 1 Triangle Dr.
Research Triangle Park, NC 27709

Subject: Compatibility of Text Telephone Devices with Digital CMRS

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Thank you,

Dan Smith
Vice President Sales & Marketing

BELLSOUTH
CELLULAR CORP.

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street N.E.
Suite 900
Atlanta GA 30309-4599
(404) 249-0870

November 2, 1998

Yoshihiko Shimonaga – Chairman & CEO
Mitsubishi
3805 Crestwood Parkway Suite 350
Duluth, GA 30096

Subject: Compatibility of Text Telephone Devices with Digital CMRS

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Thank you,

Dan Smith
Vice President Sales & Marketing

BELLSOUTH
CELLULAR CORP.

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street, N.E.
Suite 900
Atlanta, GA 30309-4599
(404) 249-0870

November 2, 1998

Paulino R. Barros, Jr. – Vice President and General Manager Market Operations
Motorola
2001 N. Division Street
Harvard, IL 60033

Subject: Compatibility of Text Telephone Devices with Digital CMRS

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Thank you,

Dan Smith
Vice President Sales & Marketing

BELLSOUTH
CELLULAR CORP.

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street N.E.
Suite 900
Atlanta, GA 30309-4599
(404) 249-0870

November 2, 1998

Noboru Norose – General Manager Wireless Marketing Division
NEC America, Inc.
1555 W. Walnut Hill Lane
Irving, TX 75038

Subject: Compatibility of Text Telephone Devices with Digital CMRS

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Thank you,

Dan Smith
Vice President Sales & Marketing

PAGE.20

DEC 02 '98 11:48

BELLSOUTH
CELLULAR CORP.

Dan Smith
Vice President
Sales and Marketing

1100 Peachtree Street N.E.
Suite 900
Atlanta, GA 30309-4599
(404) 249-0870

November 2, 1998

Kari-Pekka Wilska - President
Nokia
2300 Valley View Lane Suite 100
Irving, TX 75062

Subject: Compatibility of Text Telephone Devices with Digital CMRS

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Thank you,

Dan Smith
Vice President Sales & Marketing

ATTACHMENT C

Proposed TTY Compatibility Implementation Plan

BellSouth TTY Compatibility – Proposed Implementation Plan

1Q 1999 Proposed Work Activities

Continue participation in TTY Forum activities
Support the forum efforts to complete error rate testing and continued evaluation of other solutions.

Issue Improved Guidelines for Handling TTY Customers
Develop more comprehensive uniform guidelines for handling of requests by hearing impaired individuals in all markets. Goal: to ensure customers continue to be informed of limitations of current services, and offer alternatives where BellSouth has no offering even if it involves referring them to competing carriers.

Follow up - Vendor Communication (Identification of all proposed solutions)
Schedule face-to-face meetings with vendors to discuss their plans and status of proposed solutions. Use input to further refine BellSouth's Implementation Plan.

Develop plan for Consumer Outreach
Identify best consumer outreach opportunities for BellSouth and develop ongoing plan.

2Q 1999 Proposed Work Activities

Meet with Hearing Impaired Community Representatives (If Equivalent Information is not Available Through TTY Forum or Other Industry Initiatives)
Assemble appropriate representatives to discuss BellSouth plans and potential solutions. Gather input for use in development of those solutions

Continue participation in TTY Forum activities
Support the forum efforts in evaluation of voice and data solutions.

Decision on Whether to Pursue Voice Solutions
Evaluate results of TTY Forum testing. Review the current listing of solutions and narrow to one or two readily achievable potential voice solutions (assuming they exist). Focus future efforts on these candidates. **Completion of remaining 1999 activities depend upon this decision, and assume BellSouth determines that it is appropriate to continue efforts to implement voice solutions.**

Develop Test Procedures for Evaluating BellSouth TTY Solutions
Develop practical tests for real-world application of TTY voice solutions in BellSouth service areas.

Perform Tests on Potential Solutions

Perform empirical tests using proposed readily achievable voice solutions in various environments.

Follow up - Vendor Communications
Hold one-on-one conference calls or meetings with vendors to discuss status of their proposed solutions, and keep focus on their efforts.

3Q 1999 Proposed Work Activities

Assess Test Results
Evaluate results of tests relative to economic and technical feasibility and consumer feature list.

Meet with Hearing Impaired Community Representatives (If Equivalent Information is not Available Through TTY Forum or Other Industry Initiatives)
Evaluate progress to date, and concentrate on gathering input for data and voice solution features.

Develop BellSouth Performance Guidelines (voice)
Based on input from focus groups and results of tests, develop a set of BellSouth performance guidelines or criteria which BellSouth solutions must meet.

Adopt Short Term (voice) Solution
Choose a readily achievable voice solution (assuming one exists) that meets the above performance criteria.

Follow up - Vendor Communications
Continue discussion of solutions with vendors via regular vendor contacts and planning sessions.

4Q 1999 Proposed Work Activities

Begin Phased Implementation in Selected Markets
Choose one or two markets, notify customer operations of plans, and offer the voice based solution to public. Revise TTY handling guidelines for Selected Markets.

Evaluate Results of Initial Implementation
Based upon initial results, modify guidelines to improve efficiency. Evaluate input received from TTY users in initial markets.

Begin Full Implementation in All Markets
Assuming no significant problem in initial deployment markets, expand offering to all markets where technically feasible, notify customer operations of plans, and offer the voice based solution to public. Revise TTY handling guidelines for All Markets

1st Half 2000 Proposed Work Activities

(Schedule assumes no acceptable voice solution. If voice solution is available, implementation of data solution would follow BellSouth commercial plans for broad digital data services introduction.)

Narrow Potential Data Solutions to one or two options

Review the current listing of solutions and narrow to one or two readily achievable potential data solutions (assuming they exist). Focus future efforts on these candidates.

Develop Test Procedures for Evaluating BellSouth TTY Data Solutions

Develop practical tests for real-world application of TTY data solutions in BellSouth service areas.

Perform Tests on Potential Data Solutions

Perform empirical tests using proposed data solutions in various environments.

Assess Data Test Results

Analyze results of data solution tests and compare with consumer group list of desired features.

2nd Half 2000 Proposed Work Activities

Develop BellSouth Data Performance Guidelines

Based on input from focus groups and results of tests, develop a set of BellSouth performance guidelines or criteria which our data solutions will meet.

Adopt Long Term (data) Solution

Choose a data solution that meets the above performance criteria.

Begin Phased Implementation in Selected Markets

Choose one or two markets, notify customer operations of plans, and offer the data based solution to public. Revise TTY handling guidelines for selected markets.

Evaluate Results of Initial Implementation

Based upon initial results, modify data solution guidelines to improve efficiency. Evaluate input received from TTY data solution users.

Begin Full Implementation of Data Solution in All Markets

Assuming no significant problem in initial deployment markets, expand offering to all markets where technically feasible, notify customer operations of plans, and offer the data based solution to public. Revise TTY handling guidelines for all markets.

CERTIFICATE OF SERVICE

I, Brooke Wilding, hereby certify that on this 4th day of December, 1998, copies of the foregoing "BellSouth Petition for Waiver of Section 20.18(c) of the Commission's Rules" in CC Docket No. 94-102 were served by hand on the following:

Chairman William E. Kennard
Federal Communications Commission
1919 M Street, NW, Room 814
Washington, D.C. 20554

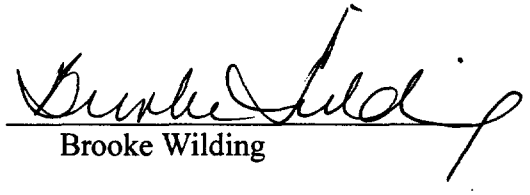
Commissioner Gloria Tristani
Federal Communications Commission
1919 M Street, NW, Room 826
Washington, D.C. 20554

Commissioner Michael Powell
Federal Communications Commission
1919 M Street, NW, Room 844
Washington, D.C. 20554

Commissioner Harold Furchtgott-Roth
Federal Communications Commission
1919 M Street, NW, Room 802
Washington, D.C. 20554

Commissioner Susan Ness
Federal Communications Commission
1919 M Street, NW, Room 832
Washington, D.C. 20554

Daniel Phython, Chief
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, DC 20554



Brooke Wilding